

From: <GT700@dnvps.com>
To: <office@Transeste.com>
Cc: <ULF@SKY.LES-RAISTING.DE>
Subject: HER ULF RITSCHER, FUEL ANALYSIS REPORT, HOUSTON, 21-JUN-2013, SAMPLE :
 HOU1315727 - NOTE: SULFUR ABOVE 1.00%

To: TRANSESTE SCHIFFFAHRT GMBH
 Attn: Capt Dietrich Tamke/ Capt Gerd Ritscher

Cc: The Master Of 'ULF RITSCHER'
 Attn: Chief Engineer

DNV Petroleum Services - Fuel Analysis Report dated: 26-Jun-2013

Vessel: ULF RITSCHER (9226413)

Sample Number	HOU1315727
-----	-----
Product Type	(HFO)
Bunker Port	HOUSTON
Bunker Date	21-Jun-2013
Sampling Point	SHIP MANIFOLD
Sampling Method	CONTINUOUS DRIP
Sent From	HOUSTON-DOWNTOWN
Date Sent	25-Jun-2013
Arrived at Lab	25-Jun-2013
Supplier	NUSTAR
Loaded From	JDRF 22
Quantity per C.Eng.	250

Seal Data DNVPS, SEAL INTACT, 7510591

Related Samples	
Supplier	7510592
Ship	7510593
SHIP MARPOL	7510594

Receipt Data	Unit
-----	----
Source Of Data*	S.D.FÂ
Density @ 15Â°C	kg/mÂ³ 986.9Â
Viscosity @ 50Â°C	mmÂ²/s 302.7Â
Sulfur	% m/m 0.95Â

*For future samples, please include a copy of the Bunker Delivery Note (BDN).

Test Parameter	Unit	Result	RMG380
-----	----	-----	
Density @ 15Â°C	kg/mÂ³	987.5	991.0
Viscosity @ 50Â°C	mmÂ²/s	314.2	380.0
Water	% V/V	0.2	0.5
Micro Carbon Residue	% m/m	11	18
Sulfur	% m/m	1.08	3.50
Total Sediment Potential	% m/m	0.02	0.10
Ash	% m/m	0.04	0.15

Vanadium	mg/kg	49	300
Sodium	mg/kg	20	
Aluminium	mg/kg	29	
Silicon	mg/kg	30	
Iron	mg/kg	16	
Nickel	mg/kg	29	
Calcium	mg/kg	12	
Magnesium	mg/kg	1	
Zinc	mg/kg	2	
Phosphorus	mg/kg	1	
Potassium	mg/kg	LT 1	
Pour Point	Å°C	LT 24	30
Flash Point	Å°C	GT 70	60

Calculated Values

Aluminium + Silicon	mg/kg	59	80
Net Specific Energy	MJ/kg	40.82	
CCAI (Ignition Quality)	-	850	

Note:

LT means Less Than, GT means Greater Than.

S.D.F means Sample Detail Form.

Specification Comparison :

Results compared with amended ISO 8217:2005 specification RMG380, table 2. Based on this sample the specification is met.

Note: Sulfur has been retested and confirmed.

Operational Advice :

Approximate fuel temperatures:

Injection:

140Å°C for 10 mmÅ²/s

125Å°C for 15 mmÅ²/s

115Å°C for 20 mmÅ²/s

105Å°C for 25 mmÅ²/s

Transfer :

40Å°C

Sulfur - Based on this commercial sample and the sulfur specified by the Chief Engineer, the fuel oil is potentially non-compliant if used within a designated Emission Control Area (ECA, ref MARPOL Annex VI Reg. 14(4)). It is recommended that the situation is recorded through a notification or Note of Protest (NoP) issued by the Master. Only the relevant official authorities can then advise on any further action necessary. Please note that the official MARPOL sample provided by the supplier is the governing sample regarding compliance with this statutory requirement. For assistance issuing the Note of Protest, please refer to DNVPSâ€™™ Instruction Manual.

Fuel contains abrasive contaminants as indicated by Aluminium + Silicon. Efficient centrifuging of the fuel is most important in order to reduce the

abrasive contaminant to an acceptable level.

Maintain fuel temperature at 98Â°C at separator inlet and use reduced flow rate. Consider to operate separators in parallel. Please refer to manufacturers instructions for further information.

Based on Aluminium + Silicon content, we recommend to send a set of FSC samples to assess the efficiency and confirm optimum operation of the fuel treatment plant. As a minimum, representative samples taken before and after the separators are required for this assessment. Red labels should be used for the FSC samples. Please refer to the Instruction Manual included in the sample kits for more detailed information.

Best Regards,
On behalf of DNV Petroleum Services Pte Ltd
Christian Ryder
Assistant Technical Advisor

End of Report for ULF RITSCHER

Reference to part(s) of this report which may lead to misinterpretation is prohibited.

NOTE: Please note that our lab in Oslo is no longer in operation. The latest revision(revision 25, November 2012) of our Air Courier Directory contains instructions on which lab samples should be sent to. Reporting may be delayed for samples that from now on arrive in Oslo. If you have any questions or do not have the latest version of the air courier directory onboard, please contact your nearest DNVPS office.

For technical or operational advice or further information on this report please contact your nearest DNVPS office or contact us directly at
Tel : +1 (281) 470 1030
Email : Houston@dnvps.com

***** The contents of this e-mail message and any attachments are confidential and are intended solely for the addressee. If you have received this transmission in error, please immediately notify the sender by return e-mail and delete this message and its attachments. Any unauthorized use, copying or dissemination of this transmission is prohibited. Neither the confidentiality nor the integrity of this message can be vouched for following transmission on the Internet. *****